

## ABSTRACT OF THE DISCLOSURE

A vehicle-straightening bench (20) is utilized to apply pulling forces to a damaged vehicle chassis to restore the damaged chassis to an original configuration. The bench includes a vehicle platform (22) with a carriage track (24) having a plurality of carriage assemblies (100) movably received by the carriage track (24). Each carriage assembly (100) supports a pulling assembly (200) for applying the pulling forces. A trapezoidal carriage body (102) of the carriage assembly (100) rolls in the carriage track (24), and the carriage assembly also includes a tower positioning mechanism (104) to hold the pulling assemblies (200) in place while the carriage body (102) is rolled on the track (24). The carriage assembly (100) also includes a locking mechanism (106) to lock them in place during a vehicle a pull. A force arm (206) is extended between the pulling mechanism (200) and the platform (22), so that the carriage assembly (100) is not the only force transmission path between the pulling assembly (200) and the bench (20). The automated control system (300) of the bench (20) utilizes two hydraulic pumps(316,314) to power front and back lifts (65,64), respectively. Only one of the pumps (314) is used by the pulling assemblies (200). A PLC (308) and a remote control (310) are used to control the bench (20).